

## WHAT IS CLAIMED IS:

1. A device for manufacturing items made of plastic material, particularly caps for closing containers, with molding units arranged on a structure of carousel which rotates about a first vertical axis, the device including an upper male mold part and a lower female mold part which are aligned along a second vertical axis, parallel to said first vertical axis of the carousel, said male mold part comprising: a cylindrical jacket which is rigidly coupled to the structure of the rotating carousel coaxial to a sliding axis of the female mold part; a sleeve which is guided on said jacket; and a forming punch which is guided in said jacket and comprises a tubular stem, said tubular stem having a lower portion forming a chamber, said lower portion further including an outer surface which is shaped so as to produce internal molding of a molded item, and ports provided at said outer surface, said ports being supplied with compressed air; a tube accommodated inside said stem, said tube forming, together with said stem, a cylindrical interspace which is connected to said chamber; a slender tube arranged internally along said tube and forming, together with said tube, a tubular channel, said tubular channel being connected to said chamber; and coolant fluid delivery and return couplings, said cylindrical interspace and said tubular channel being connected to said coolant fluid delivery and return couplings, and said slender tube being supplied with, and further conveying compressed air through said ports between said outer surface and the molded item, so as to cause the separation of said item from said lower portion of said tubular stem.

2. The device of claim 1, wherein said lower portion comprises: a plate which is centered at a flared region of said stem, said plate being provided with a tubular tang which is screwed into said stem so as to form said chamber, and wherein lower ends of said tube and of said slender tube are inserted hermetically in said tang so as to close said cylindrical interspace and said tubular channel, said cylindrical interspace and said tubular

*Sub cat* channel being connected to said chamber through openings provided at said tang.

*Sub P2/1*

3. The device of claim 2, comprising a body coupled to an upper end of said stem, upper ends of said tube and of said slender tube being inserted 5 hermetically in said body; and holes being formed in said body in order to connect said annular interspace and said tubular channel to said coolant fluid delivery and return couplings and to allow supplying of compressed air to said slender tube.

4. The device of claim 3, further comprising an element which is fixed to 10 a top part of said stem, said element being provided with couplings for connection to said holes, and accommodating said body which has a cylindrical form.

5. The device of claim 4, comprising elastic means, which are interposed between said element and the structure of the carousel for returning said 15 stem into a position in which said punch rests against a shoulder of said jacket.

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